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Cutaneous Sympathy

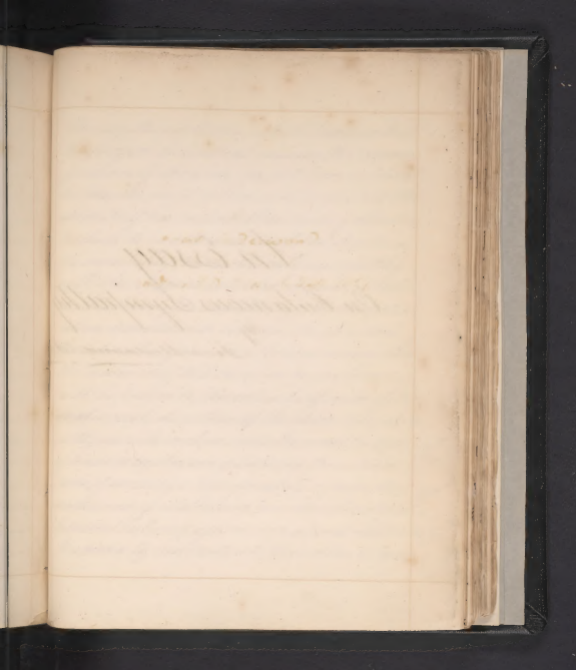
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An Essay
On Cutaneous Sympathy

By

James Underwood M.D.

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During the revolutions which have marked
the progress of medical science, the excretory
function of the skin has not been overlooked;
but, it is only until within a few years, that the
skin itself has received that degree of attention,
to which its minute and complex structure,
its sensibility and intimate sympathy
with the various internal organs, entitles
it. Previously to considering the associated
actions maintained between the skin and
the internal organs, and their connexion thro'
the medium of the mucous membrane, it
will be proper to present a brief view of the
anatomical structure of the skin. This appa-
rently simple envelope, serves the several purposes
of binding together, and of protecting the internal
parts, of excreting a large quantity of perspiration
matter, and of establishing an intimate relation
between the living system and external substances.
It is divided by anatomists into three distinct layers,

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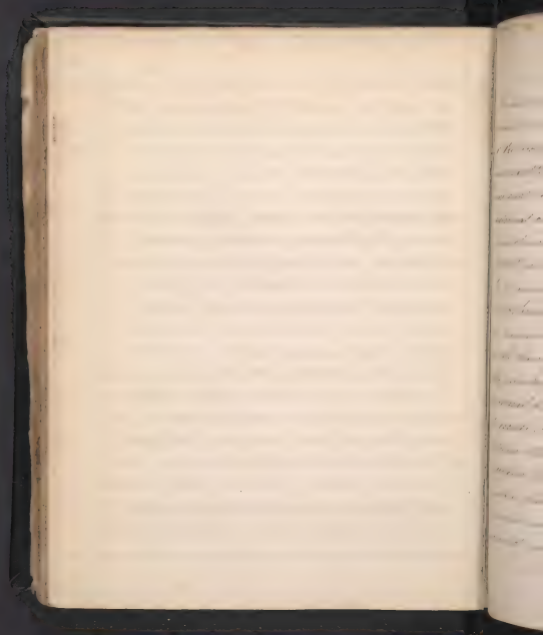
the principle of which, constituting the chief bulk of the skin, is the *cutis vera*. This is a compact and strong areolar tissue, composed of a firm fibrous substance, with numerous vacuities or intervals. On its external surface, it is close and compact resembling the smooth continuity of a membrane, but on its opposite surface, where the fibrous portion is blended with subjacent cellular substance, the texture is more loose, and the areolae are larger. When immersed in water it becomes softer, by a separation of its fibres, and its intervals are rendered more distinct. Examined in this state, the areolae are found to punctuate its whole thickness, and to serve for the purpose of transmitting to the surface the hairs, exhalents and absorbents. The areolar tissue of the *cutis vera* is permeated by countless myriads of arterial and venous ramifications, whose capillary divisions occupy the external or compact surface of this part, and form a vascular network over the whole body. This is rendered obvious in

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the glow of ardent and the flush of shame; in the excitement of fever and in the eruptive stage of exanthematous diseases; when this part becomes surcharged with blood. It may also be proved post mortem by the injection of coloured fluids. These vascular ramifications are found to be particularly numerous in those parts, which possess most exquisite sensibility. The absorbents of the skin are nearly equal in number to its bloodvessels, and numerous nerves enter it in all its parts, distributing their larger ramifications in situations occupied by the papillae. The cuticle, the anterior layer of the integuments, is the thin transparent pellicle, which is raised by a blister. In its natural state, it adheres almost inseparably to the subjacent parts. It presents no traces of fibres, laminae or cells, and, in it, we can discover neither bloodvessels, absorbents nor nerves. It is perforated by hairs, by the excretory tubes of the cutaneous follicles, by the exhalant mouths of the capillary vessels, and, frequently in some parts, by absorbent orifices. It is insensible

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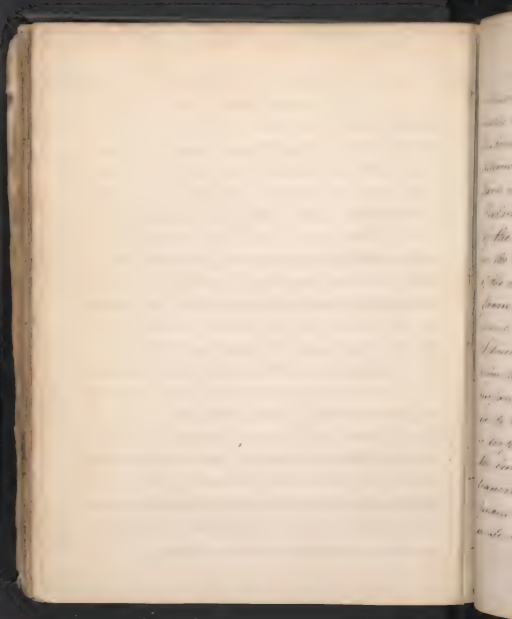
and is not capable of performing any vital
 actions, and has been, equivocally, denominated,
 varnace and cuticular. Its external covering of the
 body is not to be but a dead membrane,
 and as a protection to the finely organized
 and delicate parts beneath, and as an insensible
 medium for the communication of external
 impressions; for we find if this part be thickened
 externally, that sensation is in a great
 measure destroyed, and, if it be removed, the
 contact of bodies gives pain and does not
 impart the appropriate impression of touch.
 The remaining portion of the skin may be regarded
 as a delicate stratum interposed between the parts
 already described, and is denominated cut. muc.
 It has derived its name from the softness
 of its texture and its netlike appearance, which
 is produced by the protrusions of hair, papillae
 and other parts coming to the surface. It is the
 seat of all the variety of colour which has been observed in



the human system. It is even constituted in an
important manner to be regarded as the sensitive limit
of the body. Placed at the extremity of its organs and
constantly exposed to external influence, it forms
a great connection between animal existence and
external objects. In a living animal view,
it is obvious, that the skin is adapted to hold an
important relation with various fluids, gases & perfumes.
In it, are represented the nerves, arteries, veins and
absorbents, especially the capillary network.
The nervous system, which is so essentially concerned
in all the vital functions. I shall next point out
the sympathetic of this part with some of the
surrounding organs. The first object particularly
presents itself to our notice, is that which exists
between the skin and the lungs, denominated
the pulmonary artery. This artery, which
is the first to meet a vein, it is here seen
as most superficial; but as it is the source
of the blood, it is not exposed to the same degree of heat as the rest



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... are still sudden and considerable,
... moisture is also great, but where they
do not obtain to the same extent there is a
considerable decrease of pulmonary disease,
and a proportional increase of rheumatic
affections. In the southern states where these changes
are less frequent and the country is in a great measure,



and it occurs in many instances
as in the case of the various forms of
rheumatism and all the various forms of
nerve diseases. These portions of the United States
have been substantially dominated by
Polynesian Rheumatic and Belious sections
of the Atlantic states. The fact of misadventure
in the Polynesian system through the medium
of the skin, indicated by the skin's derived
from daily observation, may be illustrated by
an experiment. It is found by Dr. James
Johnson that on immersing the body in water
even the temperature of the skin the vessels on the
surface are drunk torpid and the blood is withdrawn
to the interior. At this moment a syncope
takes place in the capillary vessels of
the lungs, so that the blood is with difficulty
transmitted thro' the lungs, so that the
lungs are having for breath, which we observe
in all but more particularly in delicate persons

[illegible]

at the moment of immersion. But here reaction
soon takes place. The balance of the circulation
is restored and the functions of the skin are re-
newed with increased activity, succeeded by
exhalation of spirits and renovated energy.
But should there have been previously to im-
mersion exercise sufficient to induce fatigue,
or excess of perspiration to weaken the extreme
vessels on the surface. Then the torpor of the
extreme vessels of the skin cannot be properly
overcome by reaction; the balance of the
circulation is not completely restored,
and the lungs, or other internal organs
are injured, attended with more or less fever
according to the force of the exciting cause.
The sympathy, I am contending for,
exercises receives additional support from
the fact, that no means have yet been
discovered, so invariably successful, in
the cure of chronic Pulmonary disease, as

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an application of nonconductor to the surface
of the body. In a great number of cases, I have
seen flannel preserved to be worn next the
skin used in numerous slight cases here, found
it ^{is} amply sufficient for the cure, and, in all
cases a highly useful remedy. Evidence
proof, in support of this sympathy, may be
drawn from the enormous waste of life,
which dermal vicissitudes occasion, by opera-
ting upon the delicate beings of females,
through the medium of the skin. This results
from their frequent exposure to the chilly
damps of night, after the perspiratory vessels
have been overexcited in crowded rooms,
or fatigue has been induced by the
arduous exertions of the dance.

The Cutaneous Glands
sympathy, or its reverse imparts, in the
association of nature between the skin
and the stomach & its sympathy

[illegible]

as been particularly observed and described
 by Cullen, in his exposition of the proximate
 causes and phenomena of fever. He remarks,
 that from many circumstances it is suf-
 ficiently certain, that there is a consent
 between the stomach and the surface of
 the body; that this consent, particularly
 appears from the connection between the
 state of perspiration and the state of the
 appetite in healthy persons, that is, an
 appetite to the surface of the body, where
 it does not stop perspiration, proves a
 stimulus to the surface, and is a powerful
 means of exciting appetite. Dr Cullen there-
 fore attributes the anorexia, nausea, and
 vomiting, which occur in febrile affections
 to this cause, and in support of this doctrine
 adduces the fact related by Wadsworth in
 his description of Plague, in which, vomiting
 could only be allayed by exciting the surface, so as to

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induce hæmorrhoids. The sympathy is further
illustrated by the frequent occurrence of pain
in the stomach and indigestion from the abstin-
ence of cold and moisture to the feet. There are
few who have not suffered more or less from this cause.
Delicate females with tight shoes and thin
shoes are particularly obnoxious to it. Women,
although they are infinitely more temperate
in food and drink than men, yet they are
more subject to Cardialgia flatulence and
all that train of distressing symptoms, which
arise from a disordered state of the stomach.
It is usually imputed over the late Dr. Keen
with the belief that numerous diseases origin-
ated from this source that he emphatically
called the feet "the high road to disease."
But the impression which some medicines evidently
make upon the skin in a very short time after
their reception into the stomach, affords the
most remarkable proof of this connexion;



and over the head of bone, which act not through
the medium of the circulation. I have seen
violent eruptions in a quarter of an hour
convert a hot, parched skin into a torpid
one. The next reaction of the skin with
the internal organs, which I shall notice is that,
which exists between it and the intestines demon-
strated in cholera. Intestinal sympathy. There
is scarcely any cause of functional disorder in the
intestines, so common as that resulting from exten-
sive impressions on the skin. Suppressed perspira-
tion and cold or moisture applied to the feet,
frequently induces Spasmodic Cholera and
a highly dangerous state of Enteritis is fre-
quently brought on by atmospheric vicissi-
tudes or cold applied to the skin during or sub-
sequent to a state of perspiration. The milder
forms of Dysentery are met with in most
climates, but in elevated ridges of low districts
of country, i. e. where marsh effluvia and

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unimportant vicissitudes are resisted, this
becomes frequently necessary an obstinate and
inveterate fever, which renders it essential
and advantageous as those great disorders,
which ravage our larger cities. Thus, vermin
the most benignant more, arising from
contaminated the great relief afforded in
intermittent and other febrile diseases
of the intestines by drinking cold water in the
day and nights in great abundance with lax-
gatives and purgatives. The balance of
our pathy is that connection which exists
between the skin and the kidneys, and is
chiefly dependent of considerations on account
of the vicissitudes of these organs during
a state of health. Thus, vermin, the, however,
should not be that mark of a disease,
for we find, that calculous affections, as also
the diseases, in which the kidneys are concerned
are excited and increased by exposure to cold and

remedies have been so effectual as the
 warm bath. The last remedy which I
 shall notice is that, which exists between the skin
 and liver, called the cutaneo Hepatic connection.
 This was distinctly noticed and first
 described by Dr. Schwenk in his valuable
 work on the diseases of tropical climate. It
 was, by attentively observing diseases in these
 districts of country where hepatic affections
 are most abundant, that he was led to re-
 mark the very intimate relation which exists
 between the functions of the skin and those of
 the liver. It is a well known fact, that, in tropical
 climates, and in the hot season of more temperate
 regions, when perspiration is abundant, bilious
 eruptions also occur and that hepatic
 pneumonia is always attended with a correspond-
 ing diminution of biliary secretion.

A high degree of
 liver disease by augmenting the

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vicious and biliary secretion debilitates the
muscle, by which these processes are retarded,
and hence they are the more easily resisted
by the application of cold. Accordingly,
just Hepatitis whatever, works as to prevail in
hot climates, and during the hot season in more
temperate regions and also to occur during the
the winter season, when the atmosphere is conside-
rably cooler than that of the preceding day
in the summer, the treatment is different.
The skin with the internal organs. The
out of the disease and the important indica-
tions, which they point out in the cure of diseases
are not even overlooked but the mode of their
remission is the demand of the patient and
the nature of the human disease. The
nature of the disease is not, from the nature and
indispensable application of the human body.
It has been much to denote, not only the
associated action of the body between which a



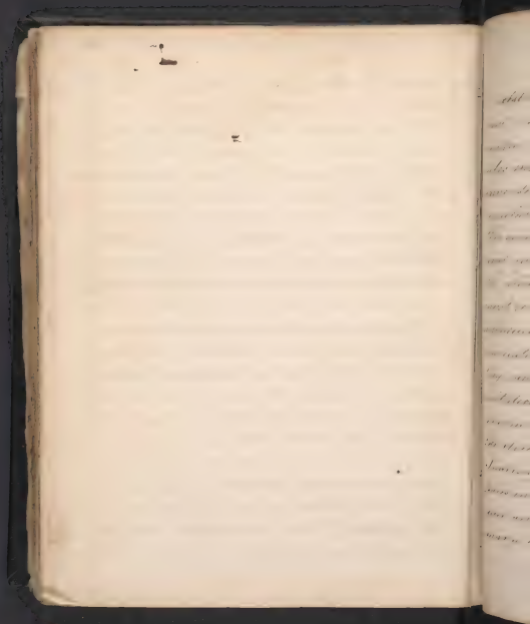
first connection in systematic structure,
and the larvae first one of these kinds which
is much more common. After receiving these
combinations of the above with the internal system
there is one circumstance which seems important
in with the idea of a connection that is stronger
than is usually in a larva, and the different
processes which have been and what is required
in this connection. The processes which are
seen, are formed by a direct extension from the
organ. The nervous system, however, from
the first stage and the nervous system of
the body, it becomes as distinct from the nervous
system, that the nervous system is not
of the nervous system, but is a separate system
nally. The lungs are supposed to be in the
ventral part of the body, and the nervous system
is in the dorsal part of the body. The lungs
are supposed to be in the ventral part of the body,
and the nervous system is in the dorsal part of the body.



... the mucous coat of the duodenum is an
 'invest' up through the ductless connection
 (arterioles) both into the gall bladder and the
 'villi' bilious. In like manner the mucous mem-
 brane houses the 'villi' into the infundibulum
 and tubular 'villi' of the kidneys. These
 'villi' are, however, modified in its structure
 and function, according to the position of
 the ducts, to which it is affixed. Still
 however, in its arterial passages, the
 general characteristics of the skin, with
 the secretion of the 'villi' bigonitum
 nigra, which is added in the rete mucosum
 of the external skin, produces the variety
 of color. The 'villi' are, in fact, outside. The
 laminae of both systems are exactly analo-
 gous. As the outside sends down its vaginal
 processes through the glandular follicles of
 the skin, so the epithelium of the mucous lining

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gives a corresponding lining through all the hollow passages. The muscular tissue, transversed by a cecum upon its surface of the rectum is asserted by Bichat to exist between the corresponding laminae of the whole success membrane. In both tissues the nerves and vessels are found to ramify in exact similarity, the skin by its nervous papillae takes cognizance of external bodies in touch or the analogous terminations of the nervous fibrils on the different textures of the interior membrane convey the impressions of solid and odoriferous particles to the mind. The respiratory fluid is secreted on the external surface and performs the office of maintaining the associated functions in exact harmony, as the various fluids secreted on their surfaces, keep up in similar motions peculiar to each organ. It is a general law of the animal economy, too well known to need much elucidation, that each system of parts is naturally disposed



to exist in the same state of energy and excitement. Thus an irritation in any part of the arterial system, though at first only the neighbouring tubes may be excited, eventually produces the same degree of action throughout the whole circulation. It is the struggle to accomplish this end, which creates the inflammatory and sympathetic fever of wounds &c. In the alimentary canal, this law is however most remarkably illustrated. Some purgatives introduced into the stomach excite a general evacuation of the large intestines long before they can travel beyond the pylorus. An irritation in the fauces or oesophagus excites inverted motions for its discharge; and often the stomach joins in the same action. Indolent hemorrhoidal tumours, and hard bodies in the rectum have been known to produce severe intestinal derangement, and many obstinate Dyspepsias have depended

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upon the existence of fistulas in ano. Now when we recollect, that the skin extends itself into the mucous membrane, and thus forms the internal secreting surface of all those organs, which communicate with it by the external apertures, it will not appear more astonishing that these viscera, which I have shown to be sympathetically ^{connected} with this extensive tissue, should show the same disposition. An impression made upon one part of its surface and producing a consequent action there, the whole organ exerts itself to harmonize in the same motions: and these functions, which at first sight might be supposed widely diverse, are operating under the same excitement, and may surely be considered as subject to the general law, which I have mentioned as influencing all the other systems.

J. Underwood. No 266 Arch

St. Stephen

My son

The Gym

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